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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,309	02/17/2004	Shao-An Cheng	V9661.0054	9754

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DICKSTEIN SHAPIRO LLP
1177 AVENUE OF THE AMERICAS (6TH AVENUE)
NEW YORK, NY 10036-2714

EXAMINER	
SMITH, NICHOLAS A	
ART UNIT	**PAPER NUMBER**
1742	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/780,309	CHENG ET AL.	
	Examiner	Art Unit	
	Nicholas A. Smith	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,21-23 and 27-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,21-23 and 27-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1-13 and 21-23 remain for examination. Claims 27-35 are new.

Response to Arguments

2. Applicant's arguments, see p. 10, filed 22 December 2006, with respect to the rejection(s) of claim(s) 1 and 5 under Kotz et al. (US Patent 4,839,007) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fitzmaurice et al. (WO01/27690).

Status of Rejection

3. Due to Applicant's amendment of claim 23, the 112 rejection of claim 23 has been withdrawn.

Specification

4. Amendment to the specification dated 21 December 2006 is entered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 5-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. (US 6,870,657).

7. Fitzmaurice et al. discloses a 5-nm diameter Sb-doped SnO_2 nanocrystals connected as a film on a substrate (col. 8, lines 7-24). Wherein Fitzmaruice et al. does not specify the Sb:Sn ratio as claimed, since Sb is doped, one of ordinary skill in the art would understand Sb is contained in a small amount and thus encompasses the claimed range. It would have been obvious to one of ordinary skill in the art to select a Sb:Sn ratio that meets the claimed limitation because Fitzmaurice et al. teaches the same utility for all Sb-doped SnO_2 (Fitzmaurice et al., col. 8, lines 7-24).

8. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. (US 6,870,657) in view of Kotz et al. (US Patent 4,839,007).

9. Fitzmaurice et al. does not specifically disclose the substrate as claimed.

10. Kotz et al. discloses the substrate material as claimed (col. 3, lines 47-64). It would have been obvious to one of ordinary skill in the art to modify Fitzmaurice et al.'s substrate with Kotz et al.'s substrate because Kotz et al. teaches titanium can operate as a long term electrode using this material (Kotz et al., col. 1, lines 46-53). Furthermore, spot-welding with same material as the substrate would be commonly done in order to establish an electrical connection.

11. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. (US Patent 5,446,339).

12. Kinoshita et al. discloses an Sb-doped SnO_2 nanocrystals connected as a film on a substrate (col. 5, line 47 to col. 6, line 4), and discloses a range of particle size that overlaps the claimed range, and thus, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art to select a

particle size that meets the claimed limitation because Kinoshita et al. teaches the same utility throughout the range (Kinoshita et al., col. 5, line 47 to col. 6, line 4).

13. Claims 11-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. in regards to claim 5 as stated above in paragraph 7, and in view of Alder (US Patent 3,960,678).

14. In regards to claim 11-13, Fitzmaurice et al. does not disclose a coating member comprising Nickel.

15. Alder teaches the use of Ni and Sb in SnO_2 electrodes. It would have been obvious to one of ordinary skill in the art to modify Fitzmaurice et al.'s electrode with Alder's dopants in order to improve sinterability, compactness and conductivity (Alder, col. 3, lines 57-61). Alder teaches a range of Ni and Sb that overlap the claimed ranges of dopants and such overlap establishes a prima facie case of obviousness as Alder teaches such addition of dopants have same utility over the whole range (col. 3, lines 57-61). See MPEP 2144.05.

16. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. as evidenced by Koizumi et al. (US 2004/0011665).

17. In regards to claim 21, Fitzmaurice et al. discloses the electrode member as stated above in paragraph 7. Fitzmaurice et al. discloses a system capable of ozone generation (abstract) as evidenced by Koizumi et al. (Koizumi et al., paragraph [0005] and paragraph [0029]). In regards the claimed feature "for electrochemical generation of ozone," applicant is reminded that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate

the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See MPEP 2114.

18. Claims 22-23, 27, 29-32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. in view of Kotz et al. and as evidenced by Koizumi et al. (US 2004/0011665) and Murphy et al. (US 5,972,196).

19. In regards to claim(s) 22-23, Fitzmaurice et al. does not specifically disclose an electrochemical system.

20. Kotz et al. discloses an electrochemical system for an Sb-modified SnO_2 electrode (col. 3, lines 47-64). It would have been obvious to one of ordinary skill in the art to modify Fitzmaurice et al.'s electrode with Kotz et al.'s electrochemical system in order to electrochemically treat aqueous fluids (Kotz et al., col. 2, lines 24-29).

21. Fitzmaurice et al. in view of Kotz et al. does not specifically disclose a solid polymer electrolyte such as a sulfonated tetrafluorethylene copolymer. However, Murphy et al. evidences that ozone generation systems typically have a sulfonated tetrafluorethylene copolymer (col. 20, line 57 to col. 21, line 28).

22. In regards to claim(s) 27, Murphy et al. evidences the use of the claimed electrolytes in an ozone generation system (col. 21, lines 41-44).

23. In regards to claim(s) 29-32, Murphy et al. evidences the use of the claimed constant voltages (col. 3, lines 42-62) and thus a case of prima facie obviousness is established. See MPEP 2144.05. It would have been obvious to one of ordinary skill in

the art to select the claimed voltage from the broader prior range because Murphy et al. teaches the same utility over the whole range (Murphy et al., col. 3, lines 42-62).

24. In regards to claim(s) 34, see paragraph 7 above.

25. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. in view of Kotz et al. and as evidenced by Koizumi et al. (US 2004/0011665) and Murphy et al. (US 5,972,196), and further in view of McGuire (US Patent 6,368,472).

26. Fitzmaurice et al. in view of Kotz et al. does not specifically disclose the claimed electrolyte concentration.

27. McGuire discloses the concentration as a results effective variable (col. 11, lines 19-29). It would have been obvious to one of ordinary skill in the art to optimize Fitzmaurice et al. in view of Kotz et al.'s electrolyte concentration because McGuire teaches that electrolyte concentration is a result-effective variable that can optimize the amount of ozone generated (McGuire, col. 11, lines 19-29).

28. Claims 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzmaurice et al. in view of Kotz et al. and as evidenced by Koizumi et al. (US 2004/0011665), Murphy et al. (US 5,972,196) and Zen et al. (US Patent 5,855,760).

29. In regards to claim(s) 33, Fitzmaurice et al. in view of Kotz et al. does not specifically disclose an Ag/AgCl reference electrode, but only a calomel electrode (Kotz et al., col. 3, lines 29-31). Zen et al. evidences that is commonly known in the electrochemical art to also use Ag/AgCl reference electrodes in place of calomel electrodes (Zen et al., col. 4, lines 1-9).

30. In regards to claim(s) 35, see paragraph 7 above.

Conclusion

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

33. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NAS

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700